Safety instructions
VEGAPULS 69

Dust ignition protection by enclosure
Two-wire 4 … 20 mA/HART
Four-wire 4 … 20 mA/HART
Profibus PA
Foundation Fieldbus
Modbus

CE 0044

Document ID: 53030

VEGA

Contents

Supplementary documentation:

- Operating Instructions VEGAPULS 69
- Quick setup guide VEGAPULS 69
- EU-type approval certificate BVS 16 ATEX E 022 X (Document ID: 53031)
- EU declaration of conformity (Document ID: 48730)

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DE	Sicherheitshinweise für den Einsatz in explosionsgefährdeten Bereichen
EN	Safety instructions for the use in hazardous areas
FR	Consignes de sécurité pour une application en atmosphères explosibles
IT	Normative di sicurezza per l'impiego in luoghi con pericolo di esplosione
ES	Instrucciones de seguridad para el empleo en áreas con riesgo de explosión
PT	Normas de segurança para utilização em zonas sujeitas a explosão
NL	Veiligheidsaanwijzingen voor gebruik op plaatsen waar ontploffingsgevaar kan heersen
SV	Säkerhetsanvisningar för användning i explosiionsfarliga områden
DA	Sikkerhedsforskrifter til anvendelse i explosionsfarlig atmosfare
FI	Turvallisuusohjeet räjähdysvaarallisisssa tiloissa käyttöä varten
EL	Υποδείξεις ασΦαλείας για τη χρησιμοποίηση σε περιοχές που υπάρχει κίνδυνος έκρηξης

DE	Die vorliegenden Sicherheitshinweise sind im Download unter www.vega.com standardmäßig in den Sprachen deutsch, englisch, französisch und spanisch verfügbar. Weitere EU-Landessprachen stellt VEGA nach Anforderungen zur Verfügung.
EN	These safety instructions are available as a standard feature in the download area under www.vega.com in the languages German, English, French and Spanish. Further EU languages will be made available by VEGA upon request.
FR	Les présentes consignes de sécurité sont disponibles au téléchargement sous www.vega.com en standard en allemand, en anglais, en francais et en espagnol. VEGA met à disposition d'autres langues de l'Union Européenne selon les exigences.
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1 Area of applicability

These safety instructions apply to the radar sensors VEGAPULS 69 of type series:

- VEGAPULS PS69(*).AR****H/B/I/P/F/U******(*)(*)
- VEGAPULS PS69(*).AH****H******(*)(*)
- VEGAPULS PS69(*).AJ****H/B/I/P/F/U******(*)(*)
- VEGAPULS PS69(*).AR/H/J****HZ*****(*)(*)
- VEGAPULS PS69(*).VR****H/B/I/P/F/U****(*)(*)

with the electronics versions

- H - 4 … 20 mA/HART - two-wire
- B - 4 … 20 mA/HART- four-wire
- I - 4 … 20 mA/HART - four-wire
- P - Profibus PA
- F - Foundation Fieldbus
- M - Modbus

According to EU type approval certificate BVS 16 ATEX E 022 X (certificate number on the type label) and for all instruments with safety instruction 53030.

The classification as well as the respective standards are stated in the EU type approval certificate.

Standards:

- EN IEC 60079-0: 2018, General Requirements
- EN 60079-31: 2014

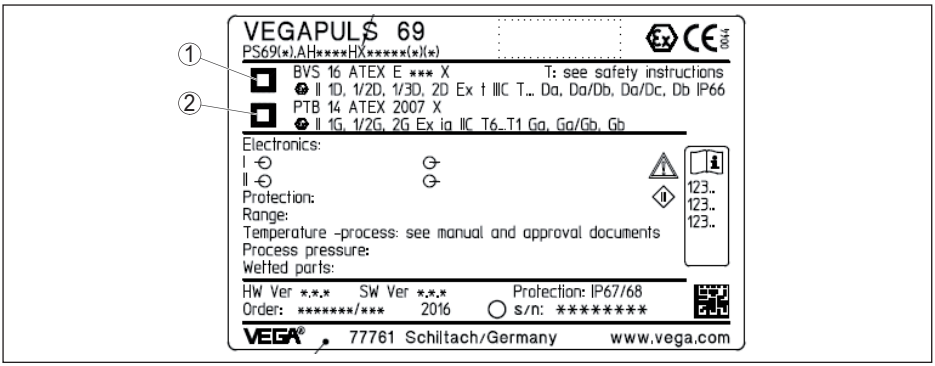
Type of protection marking:

- II 1D Ex ta IIIC T* Da
- II 1/2D Ex ta/tb IIIC T* Da/Db
- II 1/3D Ex ta/tc IIIC T* Da/Dc
- II 2D Ex tb IIIC T* Db
- IP66

2 Different ignition protection types

The VEGAPULS PS69 can be either used in explosive dust atmospheres or in explosive gas atmospheres.

The operator must specify the selected ignition protection type before installation. The selected ignition protection must be determined by marking it firmly on the identification label of the type plate.



1 Ignition protection type "Protection by enclosure Ex t"
2 Ignition protection type "Intrinsic safety Ex i"

If VEGAPULS PS69 is installed in a gas atmosphere, then the safety instructions and the instructions in the respective certificates listed in the below table must be noted.

Installation	Approval	Certificate	Safety instruction
Gas	AH	PTB 14 ATEX 2007 X	49373
Gas	AJ	PTB 15 ATEX 1009 X	50353

3 Important specification in the type code

VEGAPULS PS69(*).abcdefghijklm(*)(*)

Position		Feature	Description
a	Scope	A	ATEX / Europe
		V	Combination (ATEX, IECEx, FM, CSA)
b	Approval	R	II 1D, 1/2D, 1/3D, 2D Ex ta IIIC T… Da, Da/Db, Da/Dc, Db
		H	II 1G, 1/2G, 2G Ex ia IIC T6 … T1 Ga, Ga/Gb, Gb or II 1D, 1/2D, 1/3D, 2D Ex ta IIIC T… Da, Da/Db, Da/Dc, Db
		J	II 1/2G, 2G Ex d IIC T6 … T1 Ga/Gb, Gb or II 1D, 1/2D, 1/3D, 2D Ex ta IIIC T… Da, Da/Db, Da/Dc, Db
c	Version / Material	B	Plastic horn antenna / PP
		C	Metal-jacketed lens antenna with rinsing connection / PEEK
		U	Thread with integrated horn antenna with Second Line of Defense / PEEK-PTFE
de	Process fitting / Material	**	Process fittings acc. to industry standard

Position		Feature	Description
f	Seal / Process temperature	A	FKM (SHS FPM 70C3 GLT) and PEEK / -40 … +130 °C
		B	FKM (SHS FPM 70C3 GLT) and PEEK / -40 … +200 °C
		C	PP / -40 … +80 °C
		D	FKM (SHS FPM 70C3 GLT) and PP / -40 … +80 °C
		E	EPDM (COG AP310) and PP / -40 … +80 °C
		F	EPDM (COG AP302) and PEEK (FDA) / -40 … +130 °C
		G	FKM (Kalrez 6375) and PEEK / -20 … +130 °C
		H	FKM (Kalrez 6375) and PEEK / -20 … +200 °C
		R	FKM (Kalrez 6230) and PEEK / -20 … +130 °C
		S	FKM (Kalrez 6230) and PEEK / -20 … +200 °C
g	Electronics	H	Two-wire, 4 … 20 mA/HART, U = 12 … 35 V DC
		B	Four-wire, 4 … 20 mA/HART, U = 90 … 250 V AC; 50/60 Hz
		I	Four-wire, 4 … 20 mA/HART, U = 9.6 … 48 V DC; 20 … 42 V AC; 50/60 Hz
		P	Two-wire Profibus PA
		F	Two-wire Foundation Fieldbus
		U	Four-wire Modbus (converter in second chamber)
h	Supplementary electronics	X	without
		Z	Additional current output 4 … 20 mA
i	Housing	A	Aluminium / IP66/IP68 (0.2 bar)
		H	Special colour Aluminium / IP66/IP68 (0.2 bar)
		D	Aluminium double chamber / IP66/IP68 (0.2 bar)
		S	Special colour Aluminium double chamber / IP66/IP68 (0.2 bar)
		V	Stainless steel (precision casting) 316L / IP66/IP68 (0.2 bar)
		W	Stainless steel double chamber / IP66/IP68 (0.2 bar)
j	Cable entry / Connection	D	M20 x 1.5 / Blind plug
		1	M20 x 1.5 / without
		N	½ NPT / Blind plug
		Q	½ NPT / without
		2	M20 x 1.5 / Cable gland brass nickel-plated (ø 5 … 9 mm), Ex ta
		O	M20 x 1.5 / Cable gland brass nickel-plated (ø 6 … 12 mm), Ex db + Ex ta
		6	M20 x 1.5 / Cable gland brass nickel-plated (ø 9 … 13 mm), for shielded cable, Ex db + Ex ta
		8	½ NPT / Cable gland brass nickel-plated (ø 9 … 13 mm), for shielded cable, Ex db + Ex ta
		P	½ NPT / Cable gland brass nickel-plated (ø 6 … 12 mm), Ex db + Ex ta

Position		Feature	Description
k	Display and adjustment module PLICSCOM	X	without
		A	mounted
		F	without; lid with inspection window
		B	Laterally mounted
		K	mounted; with Bluetooth, magnetic pen operation
		U	mounted; with Bluetooth, battery, magnetic pen operation
		L	laterally mounted; with Bluetooth, magnetic pen operation
		S	laterally mounted; with Bluetooth, battery, magnetic pen operation
l	Additional equipment	X	without
		R	Reflux valve for rinsing air connection
		V	Purging air connection with reflux valve
m	Certificates	X	No
		M	Yes

4 General information

The radar sensors VEGAPULS PS69 are used to detect the distance between medium surface and sensor by means of high frequency electromagnetic waves in the GHz range. The electronics uses the running time of the signals reflected by the medium surface to calculate the distance to the medium surface.

The VEGAPULS PS69 consist of an electronics housing, a process connection element and a sensor or an antenna.

The display and adjustment module can be mounted optionally.

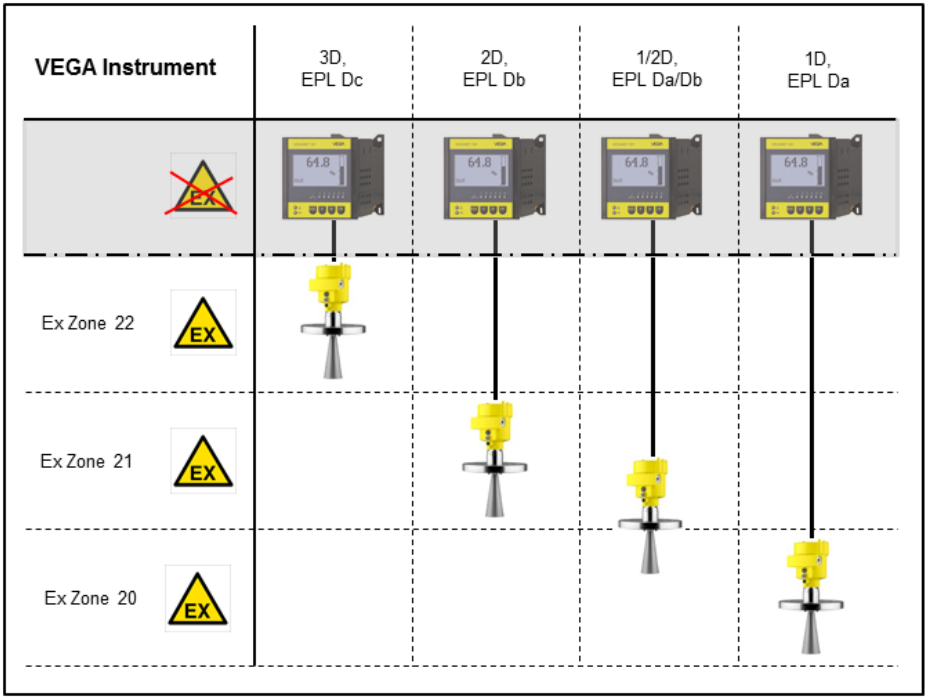
The VEGAPULS 69 are suitable for use in areas with combustible, dust generating bulk solids of group IIIA, IIIB and IIIC. These sensors are suitable for applications requiring category 1D (EPL Da), 1/2D (EPL Da/Db), 1/3D (EPL Da/Dc) or 2D (EPL Db) instruments.

5 Application area

Category 1D (EPL Da instruments)
The electronics housing and the antennas with the mechanical fixing element are installed in explosion-endangered areas of zone 20, in areas requiring instruments of category 1D (EPL Da).

Category 1/2D or 1/3D (EPL Da/Db or EPL Da/Dc instrument)
The electronics housing is installed in hazardous areas of zone 21 or 22 requiring instruments of category 2D or 3D. The process connection element is installed in the separating wall, which separates areas requiring instruments of category 2D, 3D or 1D. The antenna system with the mechanical fixing element is installed in hazardous areas of zone 20 requiring instruments of category 1D.

Category 2D (EPL Db instruments)
The electronics housing and the antenna system with the mechanical fixing element are installed in explosion-endangered areas of zone 21, in areas requiring instruments of category 2D (EPL Db).



Note: Sensor image, exemplary

6 Specific conditions of use ("X" identification)

The following overview is listing all special properties of VEGAPULS PS69, which make a labelling with the symbol "X" behind the certificate number necessary.

Ambient temperature
You can find the details in chapter " *Thermal data*" of these safety instructions.

Impact and friction sparks
The VEGAPULS PS69 in light metal versions (e.g. aluminium, titanium, zircon) must be mounted in such a way that sparks from impact and friction between light metals and steel (except stainless steel, if the presence of rust particles can be excluded) cannot occur.

Swivelling holder
The VEGAPULS PS69 in the versions with swivelling holder must be installed in such a way that when used as separating wall instrument instrument, the protection rating IP67 should be maintained.

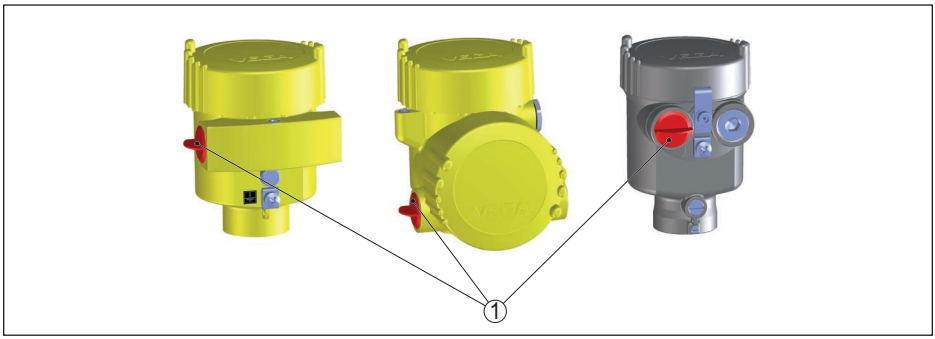
7 Important information for mounting and maintenance

General instructions
The following requirements must be fulfilled for mounting, electrical installation, setup and maintenance of the instrument:

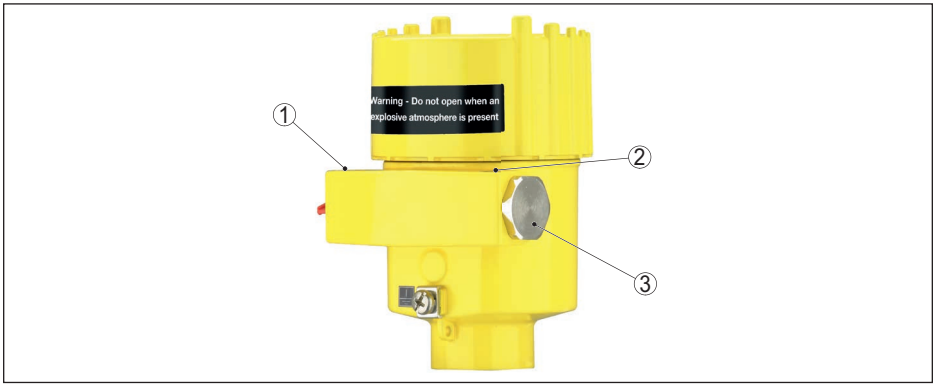
- The staff must be qualified according the respective tasks
- The staff must be trained in explosion protection
- The staff must be familiar with the respectively valid regulations, e.g. planning and installation acc. to IEC/EN 60079-14
- Make sure when working on the instrument (mounting, installation, maintenance) that there is no explosive atmosphere present, the supply circuits should be voltage-free, if possible.
- The instrument has to be mounted according to the manufacturer specifications, the EU type approval certificate and the valid regulations and standards
- Modifications on the instrument can influence the explosion protection and hence the safety, therefore repairs are not permitted to be conducted by the end user
- Modifications must only be carried out by employees authorized by VEGA company
- Use only approved spare parts
- Components for installation and connection not included in the approval documents are only permitted if these correspond technically to the latest standard mentioned on the cover sheet. They must be suitable for the application conditions and have a separate certificate. The special conditions of the components must be noted and if necessary, the components must be integrated in the type test. This applies also to the components already mentioned in the technical description.
- Vessel installations and probable flow must be taken into account

Cable and wire entries

- The VEGAPULS PS69 must be connected via suitable cable gland or conduit systems that are in conformity with the requirements of the flame proofing and the IP protection and provided with a separate type approval certificate. When connecting VEGAPULS PS69 to conduit systems, the corresponding sealing facility must be connected directly to the housing.
- The red thread or/dust covers screwed in when the instruments are shipped (depending on the version) must be removed before setup and replaced by cable entries or closing screws suitable for the respective ignition protection type and IP protection.
- Note type and size of the thread: A label with the respective thread name is in the area of the respective thread
- Threads must have no damages
- Cable entries and closing screws should be mounted correctly and according to the safety instructions of the manufacturer to ensure the specified ignition protection type and IP protection rating. When using certified or suitable cable glands, closing screws or plug connections, it is absolutely necessary to note the corresponding certificates/documents. Supplied cable entries or closing screws meet these requirements.
- Unused openings must be closed with plugs suitable for the ignition protection type and IP protection. Supplied plugs meet these requirements.
- Cable or wire entries resp. the closing screws must be tightly screwed into the housing
- The connection cables resp. pipeline sealing facilities must be suitable for the application conditions (e.g. temperature range) of the application
- With surface temperatures > 70 °C, the cables must be suitable for the higher application conditions
- The connection cable of VEGAPULS PS69 has to be wired fix and in such a way that damages can be excluded.



1 Red threaded or dust protection cap



1 Label: Type and size of the thread ½-14 NPT or M20 x 1.5
2 Label: Type and size of the thread ½-14 NPT or M20 x 1.5
3 Screw plug

Mounting

Keep in mind for instrument mounting

- Mechanical damage on the instrument must be avoided
- Mechanical friction must be avoided
- Vessel installations and probable flow must be taken into account
- Process connections separating two areas of different Ex-zones must comply to valid regulations and standards and the protection rating must be in conformity to IEC/EN 60529
- Close the housing lid (s) up to the stop before starting operating, to ensure the IP protection rating specified on the type label
- Protect the lid against unauthorized opening by unscrewing the locking screw up to the stop. With double chamber housing, you have to protect both lids.

8 Safe operating mode

General operating conditions

- Do not operate the instrument outside the electrical, thermal and mechanical specifications of the manufacturer
- Use the instrument only in media against which the wetted parts are sufficiently resistant

- Note the relation between process temperature on the sensor/antenna and the permissible ambient temperature on the electronics housing. For permissible temperatures, see the respective temperature tables. See chapter " *Thermal data*".
- If necessary, a suitable overvoltage arrester can be connected in front of the VEGAPULS PS69
- For assessment and reduction of the explosion risk, valid standards such as for example ISO/EN 1127-1 must be taken into account
- Lids must not be opened if there is a hazardous atmosphere. The housing lids are marked with the warning label:

WARNING - DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT

9 Instructions for zone 0/20 applications

In hazardous areas, the instrument should only be operated under atmospheric conditions:

- Temperature: -20 … +60 °C.
- Pressure: 80 … 110 kPa (0.8 … 1.1 bar)
- Air with normal oxygen content, normally 21 %

If there are no explosive mixtures or supplementary measures, e.g. according to ISO/EN 1127-1, then the instruments can be also operated according to the manufacturer specifications outside atmospheric conditions.

Process fittings between an area requiring EPL Ga and less endangered areas must show a tightness in accordance with protection rating IP67 acc. to IEC/EN 60529.

The operator must ensure that the medium temperature in the EPL Ga range within the process vessel is not higher than 80 % of the self-ignition temperature of the concerned medium (in °C) and does not exceed the max. permissible flange temperature depending on the temperature class.

When used as EPL Ga/Gb or EPL Da/Db instrument, a suitable overvoltage arrester must be provided acc. to IEC/EN 60079-14 as protection against overvoltages.

10 Potential equalization/Grounding

- Integrate the instruments into the local potential equalisation, e.g. via the internal or external earth terminal
- If grounding of the cable screening is necessary, this must be carried out acc. to the valid standards and regulations, e.g. acc. to IEC/EN 60079-14

11 Electrostatic charging (ESD)

In case of instrument versions with electrostatically chargeable plastic parts, the danger of electrostatic charging and discharging must be taken into account!

The following parts can charge and discharge:

- Lacquered housing version or alternative special lacquering
- Plastic housing, plastic housing parts
- Metal housing with inspection window
- Plastic process fittings
- Plastic-coated process fittings and/or plastic-coated sensors
- Connection cable for separate versions
- Type label
- Isolated metallic labels (measuring point identification plate)

Take note in case of danger of electrostatic charges:

- Avoid friction on the surfaces
- Do not dry clean the surfaces

The instruments must be mounted/installed in such a way that the following can be ruled out:

- in the case of extremely flammable dusts with a minimum ignition energy of less than 3 mJ, the device must not be used in areas where intensive electrostatic charging processes can be expected
- electrostatic charges during operation, maintenance and cleaning.
- process-related electrostatic charges, e.g. by measuring media flowing past

The warning label indicates danger:

WARNING - POTENTIAL ELECTROSTATIC CHARGING HAZARD - SEE INSTRUCTIONS

12 Electrical data

VEGAPULS PS69 used in explosive dust atmospheres

VEGAPULS PS69(*).*R/H/J**H/P/F/B/I/U******(*)(*), PS69(*).*R/H/J****HZ*****(*)(*) installed in Zone 20**

Supply and signal circuit: VEGAPULS PS69(*).*R/H/J****H******(*)(*) Terminal 1[+], 2[-] in electronics compartment of the single chamber housing VEGAPULS PS69(*).*R/H/J****H***B/L/S**(*)(*) Terminal 1[+], 2[-] in connection compartment of the double chamber housing	U = 12 … 35 V DC P_{max} < 2 W
The max. power of the voltage supply of VEGAPULS PS69(*).*R/H/J****H******(*)(*) installed in Zone 20 must not exceed 2 W.	
VEGAPULS PS69(*).*R/H/J****HZ*****(*)(*) Power supply and signal circuit 1: terminals 1[+], 2[-] Power supply and signal circuit 2: terminals 7[+], 8[-] Terminal 1, 2, 7, 8 in connection compartment of the double chamber housing	U = 12 … 35 V DC P_{max} < 2 W U = 12 … 35 V DC P_{max} < 2 W
The max. power of the voltage supply of VEGAPULS PS69(*).*R/H/J****HZ*****(*)(*) installed in Zone 20 must not exceed 2 x 2 W.	
Supply and signal circuit: VEGAPULS PS69(*).*R/H/J****P/F******(*)(*) Terminal 1[+], 2[-] in electronics compartment of the single chamber housing VEGAPULS PS69(*).*R/H/J****P/F***B/L/S**(*)(*) Terminal 1[+], 2[-] in connection compartment of the double chamber housing	U = 9 … 32 V DC P_{max} < 2 W
The max. power of the voltage supply of VEGAPULS PS69(*).*R/H/J****P/F******(*)(*) installed in Zone 20 must not exceed 2 W.	

VEGAPULS PS69(*).*R/J****B******(*)(*) Supply circuit: terminals 1[+], 2[-] Signal circuit: Terminals 5[+], 7[-], 4 … 20 mA with superimposed HART signal Passive signal circuit: terminals 6[+], 7[-], 4 … 20 mA with superimposed HART signal Terminal 1, 2, 5, 6, 7 in connection compartment	U = 90 … 250 V AC, 50/60 Hz
VEGAPULS PS69(*).*R/J****I******(*)(*) Supply circuit: terminals 1[+], 2[-] Signal circuit: Terminals 5[+], 7[-], 4 … 20 mA with superimposed HART signal Passive signal circuit: terminals 6[+], 7[-], 4 … 20 mA with superimposed HART signal Terminal 1, 2, 5, 6, 7 in connection compartment	U = 20 … 42 V AC, 50/60 Hz or U = 9.6 … 48 V DC
VEGAPULS PS69(*).*R/J****U******(*)(*) Supply circuit: terminals 1[+], 2[-] Supply circuit: terminals 3[D0], 4[D1] Terminals 5[IS GND] USB connection Terminals 1, 2, 3, 4, 5, USB in connection compartment	U = 8 … 30 V DC P_{max} < 2 W U_{max} = 5 V with Modbus signal (telegram) Function when installing according to CSA (Canadian Standards Association) U_{max} = 5 V with USB signal (USB protocol)
The max. power of the voltage supply of VEGAPULS PS69(*).*R/J****U******(*)(*) installed in Zone 20 must not exceed 2 W.	

VEGAPULS PS69(*).*R/H/J****H/P/F/B/I/U******(*)(*), PS69(*).*R/H/J****HZ*****(*)(*) installed in Zone 20/21, 20/22, 21

Supply and signal circuit: VEGAPULS PS69(*).*R/H/J****H******(*)(*) Terminal 1[+], 2[-] in electronics compartment of the single chamber housing VEGAPULS PS69(*).*R/H/J****H***B/L/S**(*)(*) Terminal 1[+], 2[-] in connection compartment of the double chamber housing	U = 12 … 35 V DC
VEGAPULS PS69(*).*R/H/J****HZ*****(*)(*) Power supply and signal circuit 1: terminals 1[+], 2[-] Power supply and signal circuit 2: terminals 7[+], 8[-] Terminal 1, 2, 7, 8 in connection compartment of the double chamber housing	U = 12 … 35 V DC U = 12 … 35 V DC

Supply and signal circuit: VEGAPULS PS69(*).*R/H/J****P/F******(*)(*) Terminal 1[+], 2[-] in electronics compartment of the single chamber housing VEGAPULS PS69(*).*R/H/J****P/F***B/L/S**(*)(*) Terminal 1[+], 2[-] in connection compartment of the double chamber housing	U = 9 … 32 V DC
VEGAPULS PS69(*).*R/J****B******(*)(*) Supply circuit: terminals 1[+], 2[-] Signal circuit: Terminals 5[+], 7[-], 4 … 20 mA with superimposed HART signal Passive signal circuit: terminals 6[+], 7[-], 4 … 20 mA with superimposed HART signal Terminal 1, 2, 5, 6, 7 in connection compartment	U = 90 … 250 V AC, 50/60 Hz
VEGAPULS PS69(*).*R/J****I******(*)(*) Supply circuit: terminals 1[+], 2[-] Signal circuit: Terminals 5[+], 7[-], 4 … 20 mA with superimposed HART signal Passive signal circuit: terminals 6[+], 7[-], 4 … 20 mA with superimposed HART signal Terminal 1, 2, 5, 6, 7 in connection compartment	U = 20 … 42 V AC, 50/60 Hz or U = 9.6 … 48 V DC
VEGAPULS PS69(*).*R/J****U******(*)(*) Supply circuit: terminals 1[+], 2[-] Supply circuit: terminals 3[D0], 4[D1] Terminals 5[IS GND] USB connection Terminals 1, 2, 3, 4, 5, USB in connection compartment	U = 8 … 30 V DC U_{max} = 5 V with Modbus signal (telegram) Function when installing according to CSA (Canadian Standards Association) U_{max} = 5 V with USB signal (USB protocol)

Display and adjustment circuit

VEGAPULS PS69(*).*R/H/J****H/P/F******(*)(*) Terminals 5, 6, 7 in electronics compartment of the single chamber housing VEGAPULS PS69(*).*R/H/J****H/P/F***B/L/S**(*)(*) Terminals 5, 6, 7 in connection compartment of the double chamber housing	Only for connection to the associated display unit VEGADIS 61/81 according to BVS 05 ATEX E 023 or IECEx BVS 06.0014.
VEGAPULS PS69(*).*R/H/J****H/P/F/B/I/U******(*)(*) Indication and adjustment circuit: (spring contacts)	For connection to the display and adjustment module PLICSCOM.

13 Thermal data

Permissible ambient temperature on the electronics housing: -40 … +60 °C

Permissible process temperature on the antenna/sensor

VEGAPULS PS69(*).*R/H/J***X*******(*)(*)	X:	A	FKM (SHS FPM 70C3 GLT) and PEEK / -40 … +130 °C with short temperature adapter
		B	FKM (SHS FPM 70C3 GLT) and PEEK / -40 … +200 °C with long temperature adapter
		C	PP / -40 … +80 °C
		D	FKM (SHS FPM 70C3 GLT) and PP / -40 … +80 °C
		E	EPDM (COG AP310) and PP / -40 … +80 °C
		F	EPDM (COG AP302) and PEEK (FDA) / -40 … +130 °C with short temperature adapter
		G	PEEK / FKM (Kalrez 6375) / -20 … +130 °C
		H	PEEK / FKM (Kalrez 6375) / -20 … +200 °C
		R	PEEK / FKM (Kalrez 6230) / -20 … +130 °C
		S	PEEK / FKM (Kalrez 6230) / -20 … +200 °C

Max. surface temperature on the electronic housing

Installation in Zone 20:

VEGAPULS	
PS69(*).*R/H/J****H******(*)(*), P_{max} < 2 W	Ambient temperature +86 K
PS69(*).*R/J****B/I******(*)(*)	limited to +102 °C by the thermal link
PS69(*).*R/J****P/F******(*)(*), P_{max} < 2 W	Ambient temperature +86 K
PS69(*).*R/J****U******(*)(*), P_{max} < 2 W	Ambient temperature +86 K
PS69(*).*R/H/J****HZ*****(*)(*), P_{max} < 2 W	Ambient temperature +86 K

Installation in Zone 20/21, 20/22 or 21:

VEGAPULS	
PS69(*).*R/H/J****H******(*)(*)	Ambient temperature +36 K
PS69(*).*R/J****B/I******(*)(*)	limited to +102 °C by the thermal link
PS69(*).*R/J****P/F******(*)(*)	Ambient temperature +36 K
PS69(*).*R/J****U******(*)(*)	Ambient temperature +36 K
PS69(*).*R/H/J****HZ*****(*)(*)	Ambient temperature +36 K

Max. surface temperature on the sensor/antenna: Process temperature +2 K
The max. surface temperature of the instrument with which the hazardous dust atmosphere can come into contact, **is the higher** of the two specified surface temperatures on the electronics housing or the sensor/antenna.

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